WHAT IS CLAIMED IS:

1.   A method for reliably multicasting data from a server to one or more clients, wherein the server and clients are connected via a control channel and a multicast data channel, the method comprising:

sending a first data transmission to the clients over the multicast data channel;

receiving a response over the control channel from at least one of the clients identifying data not received by the client during the first data transmission;

determining a minimum retransmission data set based on the response, wherein the minimum retransmission data set includes at least a portion of the data not received by the client during the first data transmission; and

sending the minimum retransmission data set over the multicast data channel.

2.   The method of claim 1 further comprising aggregating the identified data from the at least one client to determine the minimum retransmission data set.

3.   The method of claim 1 further comprising announcing a first announcement over the control channel, wherein the first announcement includes descriptive information about the first data transmission.

4.   The method of claim 3 wherein the descriptive information includes a file name and one or more byte ranges to be transmitted in the first data transmission.

5.   The method of claim 4 wherein determining the minimum retransmission data set further includes comparing the one or more byte ranges of the first announcement with the identified data not received by the client during the first data transmission.

6. The method of claim 3 further comprising announcing a second announcement over the control channel, wherein the second announcement includes descriptive information about the minimum retransmission data set.

7. The method of claim 6 further comprising:

connecting the one or more clients to the server on the control channel;

connecting the one or more clients to the multicast data channel for receiving the first data transmission; and

responsive to the second announcement, selectively connecting a subset of the one or more clients to the multicast data channel for receiving the minimum retransmission data set.

8. The method of claim 6 wherein the control channel is connected between the first and second announcements, and wherein the multicast data channel is disconnected after sending the first data transmission.

9. The method of claim 1 further comprising:

disconnecting the multicast data channel after the first data transmission; and

selectively re-connecting the multicast data channel in response to an election by the one or more clients to receive the minimum retransmission data set.

10. The method of claim 1 wherein the first data transmission includes a music file.

11. The method of claim 1 wherein each response includes an internet protocol (IP) address of the one or more clients and a set of byte ranges corresponding to the identified data not received.

12. The method of claim 1 wherein the one or more clients are each connected to the server via the control channel for exchanging meta-data describing the first data transmission and minimum retransmission data set.

13. The method of claim 1 wherein the multicast data channel utilizes a multicast transport protocol.

14. The method of claim 13 further comprising using the multicast transport protocol to detect and record information about unrecoverable data loss.

15. A method for multicasting data from a server to one or more clients over a network, the method comprising,

announcing from the server a first announcement over a control channel;

receiving from the server a first data transmission over a multicast data channel;

sending a notification over the control channel from each of the one or more clients to the server identifying at least a portion of the data not received by the client during the first data transmission; and

receiving a second data transmission over the multicast data channel from the server, wherein the second data transmission includes a minimum retransmission of data from the first data session determined by the notifications from the one or more clients.

16. The method of claim 15 further comprising aggregating the notification from each of the one or more clients to determine the minimum retransmission for the second data transmission.

17. The method of claim 15 wherein the first announcement includes a file name and one or more byte ranges to be transmitted in the first data transmission, and

wherein identifying at least a portion of the data not received by the client includes comparing the one or more byte ranges included in the first announcement with the received first data transmission.

18.   The method of claim 17 further comprising maintaining a scorecard having a permanent transmission group and a current transmission group.

19.   The method of claim 18 wherein the maintaining a scorecard includes:

enrolling the one or more clients connected to the server via the control channel in the permanent transmission group,

enrolling the at least one of the clients identifying data not received during the first data transmission in the current transmission group, and

removing the at least one of the clients from the current transmission group after the one or more byte ranges are received.

20.   The method of claim 15 further comprising selecting from the received second data transmission, by each of the one or more clients, at least the identified portion of the data not received by the client during the first data transmission.

21.   A system for reliably multicasting data over a network, the system comprising,

a server accessible to one or more client computers;

a control channel connecting the server and client computers;

a multicast data channel connecting the server and client computers; and

a plurality of instructions for execution by at least one of the server and client computers, the instructions including:

an instruction for transferring a first data transmission by the server to the one or more client computers via the control channel;

an instruction for transferring a notification from each of the one or more client computers to the server identifying information about missing data from the first data transmission via the control channel;

an instruction for transferring the first data transmission from the server to the one or more client computers via the multicast data channel; and

an instruction for transferring a second data transmission from the server to the one or more client computers via the multicast data channel, wherein the second data transmission includes a minimum superset of the missing data identified by each of the one or more client computers.

22.   The system of claim 21 further comprising one or more multicast enabled routers adapted for operating the multicast data channel between the server and the one or more client computers.

23.   The system of claim 21 further comprising one or more multicast enabled switches adapted for operating the multicast data channel between the server and the one or more client computers.

24.   The system of claim 21 further comprising:

an instruction for maintaining the control channel between the sending of the first data transmission and the sending of the second data transmission; and

an instruction for closing the data channel between the first data transmission and the second data transmission.

25.   The system of claim 21 further comprising an instruction for using the control channel to exchange meta-data between the server and the one or more client computers.